SEMEIOCARDIUM ZOLL., A MISINTERPRETED GENUS OF BALSAMINACEÆ.

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In the Natuurkundig Tijdschrift voor Nederlandsch Indië XVII (1858–59), pp. 243 seq. the celebrated ichthyologist P. Bleeker published a letter, dated 8 August, 1858, written to him by the Swiss botanist-collector Heinrich Zollinger, then residing in the Dutch Indies, on the Natural History of Madura, a small island north of the eastern part of Java. In this letter Zollinger describes a trip made that year by him over the island in the company of N. A. Th. Arriëns, then Resident (*i.e.* Commissioner) of Madura. On page 245 of his description Zollinger says: "A new genus of the family of Balsaminaceæ "is perhaps the most important discovery. The plant grows on "naked calcareous rocks between 600 and 800 feet above sea "level and has entirely the structure of the common Balsams. "Instead of a spur one of the petals bears a short sack ending in "two obtuse points. The same petal" (this is an error; see description below) "is provided at its apex with a beautiful cordate "standard. On account of this character I have called the plant "*Semeiocardium arriensii.* To my regret I found only two ripe seeds which, however, did not germinate."

Here matters rested until J. K. Hasskarl in 1863 (Annales Musei Botanici Lugduno-Batavi, I, pp. 142 seq.) gave a monograph of Indian Polygalaceæ. He examined *i.a.* the type-specimen of *Semeiocardium arriensii* collected by Zollinger (No. 3956) bearing on its ticket the note: "corolla 4-color; vexillum cordatum, "cyaneum, albido-marginatum; saccus bifidus, luteus, purpureo-"maculatus". The flowers of Zollinger's specimen being clearly in a bad state of preservation Hasskarl not only could not find the sack or spur but moreover was led into the error of mistaking the plant for a Polygalacea. The genus Semeiocardium, of which he gave no diagnosis, was retained by him and he brought to it, besides *S. arriensii* Zoll., three species from British India. Of *S. arriensii* he gave a diagnosis, but his description of the inflorescences, flowers, fruits and seeds, apparently taken from another specimen, is entirely erroneous.

In Hooker's Flora of British India 1, 201 (1872) Alfred W. Bennett reduced the three Indian species of Semeiocardium to *Polygala triphylla* Ham., a plant which does not occur in Java, nor in Madura. He did not mention *Semeiocardium arriensii.*

R. Chodat in his *Monographia Polygalacearum,* 2me partie (Mémoires de la Société de Physique et d'Histoire Naturelle de Genève XXXI, Seconde Partie, 1892/93, p. 41), apparently not

having seen good specimens of *Semeiocardium arriensii* considered Semeiocardium to be a section of Polygala. To this section he reckoned, besides *Polygala triphylla* Ham., only the insufficiently known *P. cardiocarpa* Kurz. *Semeiocardium arriensii* Zoll. was reduced by him to *Polygala triphylla*.

I myself, having seen only very bad materials, committed the same mistake in my *Schoolflora voor Java* (1911), p. 77.

But in 1915 I had, thanks to Dr. J. C. Koningsberger, then Director of the Buitenzorg Botanical Gardens and an ardent promotor of the floristic investigation of Java and surrounding islands, the occasion of making a botanical trip to Madura. On this trip I had the good fortune to re-discover the plant evidently meant by Zollinger, who was, after all, much too able a botanist to mistake a Balsaminacea for a Polygalacea. The plant, which showed the characters mentioned by Zollinger in his short description, and which grew indeed on calcareous rocks, proved to be a true Balsaminacea, nearly related to Impatiens but differing from this genus (*see* below) by the 2 lateral and the 2 posticous petals being all of them connate into a rather large, bifid standard, and by the 4-celled (not 5-celled) ovary. In 1919 a slightly differing form of the same species was discovered by me in the Kangean Archipelago (east of Madura). I succeeded in bringing over living plants and seeds to the Buitenzorg Botanical Gardens. The seeds germinated poorly, but seeds thrown out by cultivated plants germinated now and then, always on rocks. In 1930 plants, offspring of those raised from seeds collected in Kangean, were still living in the Buitenzorg Gardens.

I give below a description of the genus and the species, based on living plants.

SEMEIOCARDIUM Zoll. (descriptio emendata).

Cymæ axillares paucifloræ. Flores more generis Impatientis resupinati, zygomorphi, bisexuales, majusculi. Sepala 3; duo lateralia alte connata, tenuiter membranacea; tertium posticum (antrorsum versum) majus, petaloideum, cymbiformi-infundibuliforme, breviter calcaratum; calcare distincte bilobo, antrorsum spectante. Petalum anticum (retrorsum vergens) liberum; duo lateralia quam cetera minora, fere ad apicem usque connata cum unguibus posticorum (specie anticorum); laminæ petalorum posticorum connatæ in vexillum antrorsum vel deorsum spectans, incisurâ angustâ fere ad medium usque bifidum; hisce 4 petalis connatis floris labium inferius biunguiculatum fingentibus. Stamina 5; filamentis liberis, brevibus, latis, ovarium celantibus; antheris crassis, in tubum brevem connatis; loculis apice poro magno dehiscentibus. Ovarium oblongum, 4-loculare; loculis pauciovulatis. Stylus 1, brevis, subulatus; capsula lineari-oblonga, 1-5-sperma; valvulis 4 elastice dissilientibus, semina ejaculantibus. Folia alterna, longiter petiolata, ovato-lanceolata, leviter serrata. Herba annua, erecta, patule ramosa; caule valde succulento; radicibus brevibus.

Genus Impatienti proximum sed bene diversum petalis 4 superioribus (specie inferioribus) in laminam bifidam, biunguiculatam connatis, necnon ovario 4-loculari.

Species adhuc unica :

Semeiocardium arriensii Zoll. (*see* the plate).

Cymæ breviter pedunculatæ, 1-3-floræ; pedicellis 10-16 mm. longis. Sepala lateralia oblique deorsum spectantia, mucronulata, pallide viridia, 10-18 mm. longa, 7-11 mm. lata. Sepalum posticum a lateralibus partim tectum, mucronulatum, album vel pallide flavum, intus pulchre rubro-striatum et rubro-guttatum. Calcar inter sepala lateralia occultum, 3-7 mm. longum, latum, basi et apice angustatum, petalum anticum ovali-ellipticum, 7-11 mm. longum, 6-9 mm. latum, viride, dorso carinatum; carina acumine recurvo terminata. Petala lateralia quam postica multo breviora; ungues petalorum posticorum curvati; labium (a petalis lateralibus et posticis formatum) late ovale, 15-20 mm. longum, in speciminibus madurensibus pallide violaceum, infra incisuram cum macula intense violacea, basi sæpe notatum punctis rubris quasi continuationem efformantibus punctorum striarumque sepali postici (unde error zollingerianum), in speciminibus kangeanensibus candidum, basi luteum. Tubus antherarum recurvum (specie procurvum). Ovarium glabrum. Capsula glabra, ± 20 mm. longa, 5-6 mm. lata. Caulis crassus, apice pubescens, deorsum glaber. Petioli 10-70 mm. longi; foliis ovato-oblongis, basi obtuso-rotundatis, apice acute acuminatis, leviter serratis, junioribus subpubescentibus, adultis glabris. Herba erecta, annua, 40-80 cm. alta.

Crescit præcipue in rupibus calcareis.

Distributio:—Madura (Backer 20268, 20911).

Archipelago Kangeanensis (Kangean et Paliat) (Backer 26962, 27376, 27409, 27863, 27950, 29565, 29966, 30004).